

REMARKS

Upon entry of the present amendment, claims 1-16 will remain pending in the above-identified application with claims 1-4, 10 and 13-16 standing ready for further action on the merits and claims 5-9, 11 and 12 standing withdrawn from consideration based upon an earlier Restriction Requirement of the Examiner.

The above amendment is supported by the description of the present specification, at page 12, lines 15-20. While in this paragraph, the weight-average molecular weight is that of a precursor of a block composed of polyether sulfone, nonetheless, as described from pages 11, line 21 to page 12, line 14 of the specification, polyether sulfone is one of the preferable polymers used for the block containing substantially no sulfonic acid group.

not claim

Therefore, the block containing substantially no sulfonic acid group is preferably introduced from precursors having a weight-average molecular weight of not less than 2000.

Accordingly, the instant amendment to claim 1 does not introduce new matter.

Likewise, it is noted that new claims 14-16 are based on original claim 13, but are not multiple-dependent in format, only depending from claims 3, 4 and 10, respectively.

MW is of block of
precursor of PES | PES is
PES block

Elections/Restrictions

Applicants acknowledge their prior election with traverse of invention I (claims 1-10 and 13-16) and their further election of species I (claims 3-4). Based upon the restriction, and more particularly the Examiner's making of the same final, it follows that claims 5-9 and 11-12 currently pending are withdrawn from consideration, as being directed to a non-elected invention.

Claim Rejections Under 35 USC § 102/35 USC § 103

Claims 1-4 and 13 have been rejected under 35 USC § 102(b) as being anticipated by Helmer-Metzmann et al. (US 5,741,408). Further, claim 10 has been rejected under 35 USC § 102(b) as anticipated by or, in the alternative, under 35 USC § 103(a) as obvious over Helmer-Metzmann et al. Reconsideration and withdrawal of each of these rejections is requested based upon the following considerations.

The Present Invention and Its Advantages

The present invention is directed to a polymer electrolyte, which can be suitably used for a fuel cell, wherein the polymer electrolyte is excellent in water-resistance, possesses high heat resistance, and is suitable for forming a proton-conductive film of an inexpensive fuel cell.

The present invention is also concerned with providing a fuel cell obtainable by using a polymer electrolyte of the present invention (see claims 13-16).

Distinctions over Helmer-Metzmann et al. '408 (US 5,741,408)

The Examiner rejects claims 1-4 and 13 as being anticipated by Helmer-Metzmann et al. (US '408). The Examiner asserts that the '408 patent teaches a polymer electrolyte for use in a fuel cell having aromatic rings comprising one or more blocks having sulfonic acid groups, insofar as the sulfonation is carried out until the desired degree of sulfonation has been reached.

Claim 1 of the '408 patent shows the polyether ketone of the formula (I). In formula (I), the number of each repeating unit is 4 at most. Thus, according to the numbers of the repeating units represented by formula (I), it is apparent that the molecular weight of each repeating unit is less than 1000.

Moreover, even if the degree of sulfonation is desirably controlled as the Examiner insists in the Office Action, the molecular weight of the blocks having substantially no sulfonic acid groups also is less than 1000.

To the contrary, however, the present invention as instantly claimed is directed to a polymer electrolyte containing a block copolymer comprising one or more blocks having sulfonic acid groups

and one or more blocks having substantially no sulfonic acid group, and at least one block among all the blocks is a block having aromatic rings in the main chain thereof, wherein the one or more blocks having substantially no sulfonic acid group is/are introduced from precursors having a weight-average molecular weight of not less than 2000.

Accordingly, because the cited patent does not disclose or teach the weight-average molecular weight of the blocks having substantially no sulfonic acid group is introduced from precursors having a weight-average molecular weight of not less than 2000, it follows that the present invention is distinguishable from the cited US '408 patent and is not anticipated thereby.

Furthermore, as described at page 12, lines 15-20, when the weight-average molecular weight of the precursor is less than 2000, film strength and heat resistance of the copolymer may lower. The '408 patent does not teach or imply any such effect based on the weight-average molecular weight of the precursor. Based on such considerations, it follows that the present invention is not obvious over the cited US '408 patent.

Further to the above, it is noted that nowhere in the cited '408 patent is there provided any teachings, or motivations that would enable one of ordinary skill in the art to arrive at the present invention as claimed. Absent such teachings and

motivations in the cited art, it is clear that the same cannot stand as a proper basis for supporting an obviousness rejection of the pending claims under the provisions of 35 USC § 103(a).

CONCLUSION

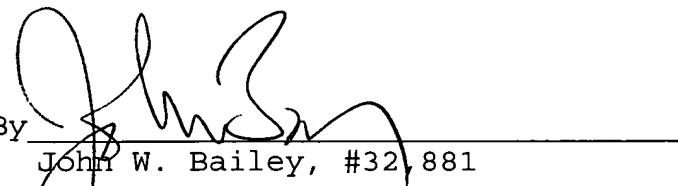
Based upon the amendments and remarks presented herein, the Examiner is respectfully requested to issue a Notice of Allowance clearly indicating that the pending claims under consideration at present (claims 1-4, 10 and 13-16) are allowed and patentable under the provisions of Title 35 of the United States Code.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Bailey (Reg. No. 32,881) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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